

AMENDMENT

Serial Number: 10/789,188

Filing Date: February 27, 2004

Title: METHOD AND APPARATUS FOR MEASURING ABSOLUTE AND NET POWER CONSUMPTION FOR COMPUTER SYSTEMS

Assignee: Intel Corporation

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REMARKS

Applicants respectfully request the Examiner's reconsideration of the present application as amended.

Claims 1-28 are pending in the present application.

Claims 1-2, 4-7, 18-19, and 25-26 are rejected under 35 U.S.C. §102(b) as being unpatentable over published application number US2003/0009705 ("Thelander").

Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Thelander in view of published application number US 2003/0226049 ("Mantani").

Claims 9, 11, 12, 13-17, 21, 23-24, 27-28 are rejected under 35 U.S.C. §103(a) as being unpatentable over Thelander in view of U.S. patent number 5,600,841 ("Culbert").

Claims 8, 10, 20, and 22 are objected to as being dependent upon a rejected base claim.

Claims 1-4, 6, 9, 18, 21, and 24-26 have been amended.

Claims 29-30 have been added.

Support for amended claims 1-4, 6, 9, 18, 21, and 24-26 and new claims 29-30 is found on pages 5-17 of the specification, Figures 1-9, and claims 1-28 as originally filed. No new matter has been added.

Claims 1-2, 4-7, 18-19, and 25-26 are rejected under 35 U.S.C. §102(b) as being unpatentable over Thelander.

Specifically, the Examiner states that

Regarding claims 1, 18, and 25, Thelander et al. disclose a method for managing power data ([0008]), comprising: determining an amount of power used for a system running an application over a first time period from an operating system (e.g. [0056], [0058]-[0060]); determining an amount of power used for the system in a baseline state over a second time period from the operating system (e.g. [0056], [0058]-[0060], [0093]); and determining a net power consumption of the application from the amount of power used for the system running the

application and the amount of power used for the system in the baseline state (e.g. [0056], [0093]).

Regarding claim 2, Thelander et al. teach subtracting a power capacity value of a battery at an end of the first time period from a power capacity value of the battery at a beginning of the first time period (e.g. Fig. 4, [0044]-[0045]).

(7/13/2005 Office Action, p. 2).

Applicants respectfully submit that Thelander, Mantani, and Culbert do not render claim 1, as amended, unpatentable under 35 U.S.C. §102 or §103.

Thelander discloses a method and system for controlling the power management profiles of computers connected through a network. The method and system monitoring the electrical power use of each computer in the network, and reports this information to an authorized party, such as the network administrator. According to the method and system, an authorized party may configure and maintain a power management profile for each computer in the network. In particular, the authorized party may individually configure and maintain a power management profile for each computer. Alternately, each computer in the network can be classified in a group, and the authorized manager can then configure and maintain a single power management profile shared by each computer in the group. (Thelander Abstract).

Mantani discloses a clock control that calculates a CPU usage rate for each of a plurality of applications with respect to a maximum clock frequency attainable by an information processing apparatus, based on registered clock frequency necessary for executing each of the applications, and setting a system clock frequency determined by a total sum of the CPU usage rates. If the frequency with which the system clock frequency exceeds a maximum clock frequency increases, an apparatus upgrade necessity alarm is sent. (Mantani Abstract).

Culbert discloses a method, system, and apparatus for controlling the supply of power to an I/O device attached to a General Purpose Input/Output (GPIO) circuit in a personal digital assistant (PDA). The GPIO circuit, which is responsible for supplying power to the attached I/O

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device, includes a pin enable circuit coupled to the power pin of the I/O device, where the pin enable circuit includes a contingency register holding a contingency bit and a power register which controls the power supply to the I/O device power pin. The contingency bit is reflective of a power supply priority of the I/O device, where the priority is determined by the type of the I/O device and whether or not the I/O device is recognized. (Culbert Abstract).

It is submitted that Thelander, Mantani, and Culbert do not teach or suggest determining an amount of power used by a system running an application over a first time period from power data supplied to an operating system by a battery over the first time period, determining an amount of power used by the system in a baseline state over a second time period from power data supplied to the operating system by the battery over the second time period, and determining a net power consumption of the application from the amount of power used by the system running the application and the amount of power used by the system in the baseline state.

On the contrary, Thelander fails to disclose using power data supplied to an operating system by a battery. The references in Thelander provided by the Examiner describe power scheme settings that puts basic hardware into a standby mode, when the computer is operating from battery power ([0045] and [0083] and Figures 4 and 10). The battery described in Thelander does not supply power data used for determining an amount of power used by a system running an application or used by the system in a baseline state.

Mantani only discloses a clock control method and apparatus and medium therefore. Mantani does not teach or suggest determining an amount of power used by a system running an application over a first time period from power data supplied to an operating system by a battery over the first time period, determining an amount of power used by the system in a baseline state over a second time period from power data supplied to the operating system by the battery over the second time period, and determining a net power consumption of the application from the amount of power used by the system running the application and the amount of power used by the system in the baseline state.

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Culbert only discloses a method and apparatus for anticipatory power management for low power data. Culbert does not teach or suggest determining an amount of power used by a system running an application over a first time period from power data supplied to an operating system by a battery over the first time period, determining an amount of power used by the system in a baseline state over a second time period from power data supplied to the operating system by the battery over the second time period, and determining a net power consumption of the application from the amount of powered by the system running the application and the amount of power used by the system in the baseline state.

In contrast, claim 1, as amended, states

A method for managing power data, comprising:
determining an amount of power used by a system running an application over a first time period from power data supplied to an operating system by a battery over the first time period;
determining an amount of power used for the system in a baseline state over a second time period from power data supplied to the operating system by the battery over the second time period; and
determining a net power consumption of the application from the amount of power used by the system running the application and the amount of power used by the system in the baseline state.

(Claim 1, as amended) (Emphasis added).

Claims 18 and 25 include similar limitations regarding the use of power data supplied by a battery. Given that claims 2-12, and 19-24, and 26-28, as amended, depend directly or indirectly from claims 1, 18, and 25, it is likewise submitted that claims 2-12, 19-24, and 26-28, as amended, are also patentable under 35 U.S.C. §102 and §102 over Thelander, Mantani, and Culbert.

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Thelander in view of Culbert.

Specifically, the Examiner states that

Thelander et al. fail to teach determining whether the update frequency for the power data is sufficient.

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Culbert et al. teach determining whether the update frequency for the power data is sufficient (e.g. Col. 4, lines 33-38).

(7/13/2005 Office Action, p. 5).

It is submitted that Thelander, Mantani, and Culbert do not render claim 13 unpatentable under 35 U.S.C. §102 or §103.

Applicants submit that Thelander, Mantani, and Culbert do not teach or suggest collecting power data for a system running an application from an operating system over a first time period, collecting power data for the system in a baseline state from the operating system over a second time period, determining whether the update frequency for the power data is sufficient, and determining net power consumption of the application from the power data if the update frequency is sufficient.

Culbert does not disclose an update frequency for power data. The Examiner sites column 4, lines 33-38 of Culbert which states

As will be explained in greater detail below, the GPIO of the invention is capable of shutting off power selectively to the I/O device to which the GPIO is attached in response to a system powerdown, such as when an attached device draws an amount of current sufficient to cause a system power down.

Applicants submit that column 4, lines 33-38 fails to disclose determining whether an update frequency for power data is sufficient and determining net power consumption of an application from the power data if the update frequency is sufficient.

The Examiner has acknowledged that "Thelander et al. fail to teach determining whether the update frequency for the power data is sufficient." (7/13/2005 Office Action, p. 5).

Mantani only discloses a clock control method and apparatus and medium therefor. Mantani does not teach or suggest collecting power data for a system running an application from an operating system over a first time period, collecting power data for the system in a baseline state from the operating system over a second time period, determining whether the update

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frequency for the power data is sufficient, and determining net power consumption of the application from the power data if the update frequency is sufficient.

In contrast, claim 13 states

A method for managing power data, comprising:
collecting power data for a system running an application from an operating system over a first time period;
collecting power data for the system in a baseline state from the operating system over a second time period;
determining whether the update frequency for the power data is sufficient; and
determining a net power consumption of the application from the power data if the update frequency is sufficient.

(Claim 13) (Emphasis added).

Given that claims 14-17 depend directly or indirectly from claim 13, it is likewise submitted that claims 14-17 are also patentable under 35 U.S.C. §102 and §103 over Thelander, Mantani, and Culbert.

It is further submitted that Thelander, Mantani, and Culbert does not teach or suggest determining a systematic error of power data used for determining the net power consumption of an application.

The Examiner states that

Regarding claims 9, 21, 27, Thelander et al. fails to determining a systematic error of power data (e.g. Col. 7, lines 52-66).

Culbert et al. teach determining a systematic error of power data.

(7/13/2005 Office Action, p. 4)

Applicants submit that Culbert only discloses displaying a general error message when battery power is low. (Culbert col. 7, lines 54-60). Displaying an error message is different than determining a systematic error of power data that is used to determine net power consumption of an application.

In contrast, new claim 29 states

A method for managing power data, comprising:
determining net power consumption of an application from power data supplied to an operating system; and

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determining a systematic error of the power data used for
determining the net power consumption.

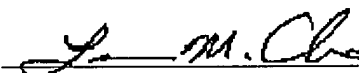
(New Claim 29) (Emphasis added).

Given that claims 30 depends from claim 29, it is likewise submitted that claim 29 is also patentable under 35 U.S.C. §102 and §103 over Thelander, Mantani, and Culbert.

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (217-377-2500) to facilitate prosecution of this application.

Respectfully submitted,

Dated: October 13, 2005



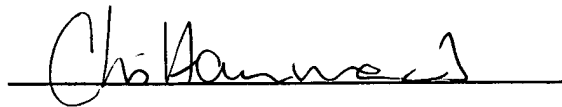
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